STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 7032

Petitions of Vermont Electric Power Company, Inc. ("VELCO"), Green Mountain Power Corporation ("GMP"), and the Town of Stowe Electric Department ("Stowe") and for a certificate of public good, pursuant to 30 V.S.A. Section 248, authorizing VELCO to upgrade a substation in Moretown, Vermont; construct .3 miles of side by side single pole tap; construct a switching station in Duxbury, Vermont; construct 9.4 miles of 115 kV transmission line; upgrade an existing GMP 34.5 kV subtransmission line; construct a substation in Stowe, Vermont; and for Stowe to construct 1.05 miles of 34.5 kV subtransmission line in Stowe, Vermont.

VERMONT AGENCY OF NATURAL RESOURCES' PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

I. Introduction

1. These findings are based on the criteria specified in 10 V.S.A. §§ 1424a(d) and 6086(a)(1) through (8) and (9)(K).

Water Purity, the Natural Environment

[30 V.S.A. § 248(b)(5)]

2. The proposed Project will not have an undue adverse impact upon air and water purity, the natural environment as discussed below. This finding is supported by Findings 2. through 45, below.

II. Findings

3. VELCO will need to obtain a number of permits from the Agency of Natural Resources before undertaking construction of the Project. These permits and approvals include a

construction permit (Individual or General), an Erosion Prevention and Sediment Control Plan (EPSC Plan), Conditional Use Determinations (CUD) for wetlands impacts as well as a Section 404 and 401 Water Quality Certificates for work and operation of the line in wetlands and wetland buffers. Greenwood pf. 4/11/05 at 2; Gilman pf .7/6/04 at 5.

Outstanding Resource Waters
[10 V.S.A. § 1424 a (d), 30 V.S.A. § 248(b)(8)]

4. None of the streams or other waters that may be impacted by the construction or operation of the Project are in the vicinity of Outstanding Resource Water designated as by the Vermont Water Resources Board. Gilman pf. at 5.

Headwaters
[10 V.S.A. § 6086(a)(1)(A)]

5. A strict application of the criteria shows that much of the project would be considered within headwaters areas because it lies in the watersheds of many small streams, each with drainage areas of less than twenty square miles. Some of these small watersheds are characterized by "steep slopes." Gilman pf at 6.

6. Many of the delineated wetlands are supported by groundwater discharge (i.e., seeps), which are generally characteristic of headwater areas. Gilman pf 1 at 6.

7. The one area that appears to be difficult in this regard, due to steep slopes, shallow soils, seasonal streams supported by groundwater discharge, and a lack of existing ground-level vegetation beneath mature hemlock trees (which will have to be removed), is the new corridor segment in Duxbury. A special erosion control plan should be developed for this area. Gilman pf at 6-7.

Streams and Shorelines
[10 V.S.A. §§ 6086(A)(1)(F), (1)(E)]

8. The project will cross approximately thirty-two streams, defined as areas of water flow with a bed-and-bank configuration and mineral bottom (i.e., vs. overland flow that is not strong enough to scour away leaf litter or vegetation). Of these, eight are seasonal streams, seventeen are perennial streams, and two are rivers (Winooski River and Little River). Gilman pf. at 7-8.

9. The Project also crosses Waterbury Reservoir, a flood control impoundment of the Little River, which is popular for a variety of recreational pursuits, including swimming, boating, water-skiing and fishing. The towers will be set back from the shorelines as far as possible to minimize impacts. The south shore is relatively steep and ledgy, with a line of shrubs, while the north shore is also ledgy, but less steep. Gilman pf. at 9; VELCO AVG-2 at 8.

10. Improper pole placement would lead to problems of pole stability and increased erosion. Gilman pf. at 8.

11. Naturally vegetated riparian buffers (that vegetation located along streambanks or lakeshores) provide a variety of ecological functions and values. Riparian buffers offer shading that moderates extreme water temperatures in summer and winter, affecting how much oxygen the water can hold (higher water temperatures hold less oxygen). Also, lower light levels inhibit algal growth, which maximizes dissolved oxygen in the water. Buffers slow overland runoff, allowing the buffer to filter out sediment originating from upland areas. Buffers also minimize lakeshore erosion, instream scour, bank erosion, and

sedimentation associated with channel instability, reducing sediment loads to receiving waterbodies. Hunter pf. 4/11/05 at 3.

12. The functions of shading and erosion control are essential in protecting aquatic biota and the habitat on which they depend. For example, fish are dependent on specific temperatures such that if water temperature is too warm or too cool, fish may not survive or may exhibit depressed growth. A difference of only a few degrees can impact species composition of the stream. Sedimentation causes habitat reduction and habitat change, resulting in a number of physical and biological effects, such as lower reproductive success of fish. Hunter pf. at 3.

13. Stream crossings for construction or maintenance must be avoided to the greatest extent possible. If stream crossings are necessary for construction or maintenance, then site-specific erosion prevention standards should be strictly adhered to at stream crossings to minimize downstream sedimentation during construction. Hunter pf. at 4.

14. To maximize erosion prevention and sediment control, an attempt should be made to design perpendicular, or near perpendicular, crossings to lessen impact to riparian vegetation. Riparian vegetation should be protected during construction, leaving streambank vegetation intact as much as possible to help prevent streambank erosion and provide shading. All instream work should be performed during the period from June 1 to October 1. Such a period protects certain fish species such as brook trout during their spawning season. The work area should be isolated from stream flow or "in-the-dry" as much as possible. Construction should take place under conditions which prevent downstream sedimentation where possible. Hunter pf. 4.

15. The applicant has not provided detailed information regarding stream crossings. Instead, it states in general that construction will occur within 50 to 100 feet of the top of bank of various watercourses and that structures will "generally set well back" and "as far as possible" from waters. Greenwood pf at 6-7.

16. To construct those lines VELCO may need to construct roads and install culverts for both temporary and permanent stream crossings. The Board should require design plans to determine the potential impacts to water quality. Greenwood pf at 7.

17. Final buffer width recommended by the Agency will be based on what is required to maintain or enhance the functions and values of the riparian area at the project site. The Agency normally recommends a minimum riparian buffer zone width of 100 feet for lakeshores. A buffer width of 100 feet will in most cases provide adequate treatment of runoff from upland areas and minimize lakeshore erosion. The minimum buffer zone width normally recommended for streams is 50 feet or 100 feet, depending on the specific characteristics of the site. Hunter pf. at 7.

18. To "maintain waters in their natural condition," protected buffers should be "undisturbed" such that no construction, no mowing, no cutting, or no activity occurs in the buffer that alters the natural vegetation. Buffers are measured horizontally from the mean water level, top of bank (when the channel has a flat, wide floodplain), or top of slope (when a channel is contained in a narrow v-shaped channel with steep slopes), depending on site characteristics, to the edge of allowed project activity. Hunter pf. at 7.

19. The specific characteristics of a particular riparian corridor are important in determining the width of the buffer zone and may include channel stability, slope of the land, and

aquatic habitats or communities present (i.e. large rivers require larger buffers to maintain natural channel functions). Hunter pf. at 7.

20. A minimum riparian buffer of 100 ft at Waterbury Reservoir, Little River, and Winooski River. The Agency would normally request that all other streams associated with the project have a minimum buffer of 50 ft. The applicant should delineate top of bank or top of slope and the proposed buffers on project site plans and describe how the project will protect riparian buffer functions within the framework of Agency recommendations. Hunter pf. at 8.

Wetlands
[10 V.S.A. § 6086(a)(1)(G)]

21. A total of eighty-four wetlands have been delineated in the Project area, of which twelve are considered Class Two, significant wetlands under the Vermont Wetlands Rules. The development therefore requires a Conditional Use Determination from the Vermont Agency of Natural Resources. Gilman pf at 9.

22. Impacts can be divided into temporary impacts and permanent impacts: Temporary impacts are generally associated with the construction phase of the Project, while permanent impacts result from construction and on-going management practices. Impacts will result from temporary fill for access roads, temporary culvert placements, ground disturbance around proposed substation expansions, and other similar activities. Permanent impacts include wetland filling for substation expansion, permanent culvert installation to cross water courses, excavation and fills for pole placement, and clearing of vegetation, primarily overstory trees (trees that will have to be cleared to create right of way), for the power line right-of-way. Morrison pf 4/11/05 at 3.

23. One wetland (although Class Three) would be significant for hydrophytic vegetation, as it has the characteristics of an intermediate fen as defined by the Vermont Wetlands Rules. The fen will be spanned. Gilman pf. at 10-11, 13.

24. VELCO will need a Conditional Use Determination (CUD) from the Agency for impacts to Class II wetlands, a U.S. Army Corps of Engineers § 404 permit, and a Vermont § 401 Water Quality Certificate. A CUD is required from the Agency because there are impacts to the Class II wetlands. A § 404 permit from the Corps is required because there will be over 3,000 square feet of wetland fill from the proposed Project. Morrison pf. at 2.

25. The Agency will consider impacts to Class III wetlands as part of the Water Quality Certificate review, and also as they pertain to other criteria such as water quality protection; habitat for rare, threatened, and endangered species; rare and irreplaceable natural areas, and necessary wildlife habitat. Morrison pf. at 3.

26. VELCO has not yet quantified the impacts of the project. The CUD application for the above-described permits will contain the necessary level of detail to evaluate the impacts to Class II wetlands from pole placement, rights-of-way clearing, and substation expansion, including how access for the construction of the Project will occur in and around wetland areas. Morrison pf. at 4

27. The final design must reflect an effort by the applicants to avoid and minimize wetland impacts where possible. Opportunities for avoidance and minimization include winter construction for some components of the Project; strategic pole placement and lengthened line spans over sensitive Class Two and Class Three wetlands; and design and placement of the Stowe Substation, currently located in a Class Two wetland. Morrison pf. at 4.

28. The best time for construction in wetlands is during the winter. During the winter the majority of the delineate wetlands are frozen or snow-covered, allowing construction vehicles to cross into a wetland without significant disturbance. Johnson, pf. at 8-9.

Stowe Substation

29. There are significant wetlands at the substation site in Stowe that will be impacted. Gilman pf. at 13.

30. In the absence of the final engineering design with final pole locations, impacts cannot be precisely quantified at this time, however, there will be structures in wetlands and buffer zones, and access to these structures will be necessary. I expect some access will require temporary or permanent roads, and that there could be impacts on protected functions and values. However, the footprint of each structure is quite small, and the conductors will span hundreds of feet. Gilman pf. at 14.

31. The Stowe substation expansion will be impacting a previously disturbed wetland. In this situation, as in other situations where there are previous impacts to a wetland, the Vermont Wetland Rules require the project be examined in the context of cumulative impacts.[1] The Rules reflect the necessity to evaluate cumulative and ongoing impacts from surrounding development in conjunction with proposed impacts from the project under review. Morrison pf. at 6.

[1] Specifically, Section 8.5 of the Vermont Wetland Rules states that, "…the potential effect of any proposed conditional use shall be evaluated on the basis of both its direct and immediate effects as well as on the basis of any cumulative or on-going effects on the significant wetland."

Soil Erosion
[10 V.S.A. § 6086(a)(4)]

32. The Project involves construction work due to the installation of new poles, access and maintenance corridors (including the installation of culverts) and substation work. Although the footprint of, for example, new poles may be small, the work done to access and install those poles has the potential for environmental impacts generally and water quality impacts specifically. Greenwood pf. at 3.

33. It is unclear if the Project will require coverage under Construction General Permit 3-9001 (2003) or under an Individual Construction Permit. VELCO must calculate the amount of earth that is to be disturbed and determine if coverage is necessary. The CGP requires the development and submittal of an Erosion Prevention and Sediment Control Plan ("EPSC Plan" or "Plan") for any project that disturbs five or more acres of soil. Greenwood pf. at 2.

34. Erosion control practices described by the petitioner are general in nature. Most of the measures listed are sediment control measures, while a good Plan focuses predominantly on erosion prevention practices and then uses sediment control measures to catch any sediment that escapes the erosion control measures. The practices presented are not sufficient for sensitive areas such as steep slopes. Greenwood pf. 4-5.

35. The applicant has also not provided resource maps that indicate where water resources are in proximity to the proposed Project, that is, off of the property lines. Greenwood pf. at 5.

36. VELCO will require contractors to develop an erosion control plan that complies with the Vermont Handbook for Soil Erosion and Sediment Control of Construction Sites, and

will require them to install and maintain control measures as specified by the plan. Johnson, pf 12/6/04 at 8.

37. To ensure that such impacts are limited an EPSC Plan must be filed and approved by the Agency prior to construction. Greenwood pf. at 2.

38. The best erosion plans are developed during the planning phases of the project. This is so because the engineer can ensure that the plan is technically sound while the project contractor can ensure that it is cost-effective. This process has the added benefit of giving the contractor advanced understanding of the Plan and thus will be familiar with the reasoning behind it. Greenwood pf. at 6.

Discussion

It is difficult to evaluate a project for soil erosion when only conceptual corridors are proposed and only general measures are described. Indeed, many measures described by the applicant are sediment, rather than erosion control measures--the distinction being the former traps mobilized sediments (catching it in, for instance, silt fences), while the latter keeps the sediment in place (by use of, for instance, seeding and mulching).

It would be useful for petitioners to identify high risk areas, such as to identify containing steep slopes and shallow soils, and then proposed specific measure to address possible erosion problems.

VELCO will, however, develop the necessary plans and undertake the required measures as detailed in the EPSC Plan. This plan should be submitted to the Board and parties during post-certification. The Agency does not anticipate that the Project will, if the EPSC Plan is carried out correctly, result in undue adverse impact to water quality.

Rare and Irreplaceable Natural Areas;
Necessary Wildlife Habitat,
Endangered Species
[10 V.S.A. § 6086(a)(8)]

Rare and Irreplaceable Natural Areas

39. The line is proposed to go through a fen in Stowe. VELCO has it marked as G4-69. Fens are rare wetland natural community types. They are significant because they support hyrdophytic vegetation. Fens are sensitive because of their pH and their sensitivity to stormwater run-off. Morrison pf. at 4-5.

    The fen itself will be spanned. Gilman tr 7/7/06 at 22.

40. During construction it is imperative that no poles be placed in the vicinity of the wetland or in any location that would impede the groundwater that supplies the fen and that there be no vehicular or foot access across the fen. Although removing large woody species would help maintain the open nature of the fen, the peat soils require that this be done in winter with frozen ground. No large vehicles, tracked or otherwise, should cross the fen under any condition and that pesticides not be used in proximity of the fen. What the buffer should be depends on the grade of the terrain in the fen – the steeper the slope the larger the buffer. Morrison pf 4/11/05 at 4-5.

Necessary Wildlife Habitat

41. There are two areas of mapped deer winter area (DWA). One, near Ashford Lane in Waterbury, the other, near River Road in Stowe. Both are in close proximity to residential areas. Gilman pfr 5/23/05 at 3.

42. Approximately one acre of DWA will be directly impacted by the project. That impact can be mitigated by deer "crossing lanes." Gilman tr 7/7/06 at 19-20.

43. VELCO has agreed to manage the two "crossing areas" in such as way as to promote deer crossing under adverse winter conditions by allowing maximum growth of vegetation consistent with safety. Gilman pfr 5/23/05 at 4.

Endangered Species

44. One species considered "rare" by the Vermont Nongame and Natural Heritage Program, i.e. New England grape (*Vitis novae-angliae*); this occurs in a hedgerow at the substation site and may be impacted. Gilman pf at 18.

45. This species will be avoided in the construction of the project. Gilman tr 7/7/05 at 27-28.

Development Affecting Public Investments
[10 V.S.A. § 6086(a)(9)(K)]

Waterbury Reservoir

46. On the State Forests lands, the proposed VELCO 115 kV transmission line is located within an existing Green Mountain Power (GMP) right-of-way (ROW). Frederick pf. 4/11/05 at 3. Exhibit ANR-DF-2 at 11-12, Appendix A.

47. VELCO proposes to widen the existing ROW at the Waterbury Reservoir crossing by an additional 100 feet. This additional 100 feet will be cleared along the banks of the Reservoir on both sides to accommodate a second set of H-frame structures for the new transmission line. Frederick pf. 4/11/05 at 3-4.

48. The Waterbury Reservoir is one of Vermont's most important and most used day-use areas. DPS-DR-1 at 19.

49. The clearing of an additional 100 foot proposed ROW will be visible from locations on and around the Waterbury Reservoir, including the Blush Hill Boat Ramp, Sunbather's

Rock, from the perspective of boaters and users on the Reservoir, and potentially other locations. Frederick pf. 4/11/05 at 3-5; Bulmer pf. 4/11/05 at 5.

50. The proposed upgrade will significantly degrade the users' visual experience from the water and environs of the Reservoir crossing because the new proposed towers are 1-1/3 and 2 times the size of the existing single tower construction. Raphael pf. 4/11/05; Exhibit DPS-DR-1 at 21; Bulmer pfr. 5/23/05 at 2.

51. The Agency's testimony takes account of the visual impact of the proposed project and its impact to the state forest and recreational users of Waterbury Reservoir and its environs. Agency testimony does not weigh the benefits of aesthetic mitigation against their costs. Bulmer pfr. at 2-3.

Discussion

The Project, as proposed, materially impacts the public's use and enjoyment of public resources facilities, services, and lands in the project area.

In the recent decision in Docket 6860, the Board wrote, of the shorelines subsection of 6086(a)(1)(F) "This subsection makes clear that the intent of the Vermont General Assembly in passing this statute was to provide substantial protection for the environmental, scenic, and recreational characteristics of the State's shorelines." Manifest in the Board's observation is the concern that shorelines are a critical part of forest health, water quality, and recreation. This is particularly true given that the shoreline in question is that of the Waterbury Reservoir and its surrounding parks are one of the most visited day-use areas in Vermont.

The Agency has not considered costs in its analyses of the impact of the Reservoir Crossing and the attendant clearing. Rather, the Agency has focused on its mission of and duty in providing environmental protection as well as high quality recreational opportunities and

experience. For the questions of costs and impact to ratepayers, the Agency respectfully defers to the Department for Public Service.

Gregg Hill Residents' Reroute Proposal

52. The Gregg Hill Residents propose to reroute the VELCO proposed 115 kV transmission line and to move the existing GMP 34.5 kV line from the existing GMP ROW corridor on the north side of the Waterbury Reservoir across undeveloped state forest land and away from Gregg Hill Road such that the line would be relocated to the back of the Gregg Hill Residents' properties (Abraham-Magdamo, Orr and Bankson) from its existing location in front of and beside these residences and further away from Gregg Hill Road on other properties (including Bieler). Frederick pfr 5/23/05 at 5-7; Orr pf 4/8/05; Exhibit GHR-1.

53. The Gregg Hill Reroute alternatives have aesthetic advantages from the perspective of the Gregg Hill Residents' residences of Abraham-Magdamo, Bankson and Orr and for a short section of Gregg Hill Road. Boyle/Portz pfs 6/27/05 at 4.

54. The existing ROW predates the purchase of the homes by some members of the GHR. They purchased their homes with knowledge that power lines are sometimes upgraded. Orr tr. 7/7/05 at 110.

55. While VELCO has provided the three alternative reroutes in their surrebuttal, no complete visual analyses have been provided for these routes, nor has a *Quechee* analysis has been entered into evidence. No party has proposed any of the routes. Surrebuttal Exhibits, Kim Moulton pfs at 5-6, Rapheal tr. 7/8/05 at 138; Boyle tr 7/8/05 at 25-27; Boyle/Portz Surrebuttal-1; Orr tr 111-112.

56. There is insufficient information in the record that any reroute on Gregg Hill can pass the *Quechee* test. Rapheal tr. 7/8/05 at 138.

57. No expert visual/aesthetic or analyses of the proposed Gregg Hill reroute have been entered into evidence regarding the impact on the State Forest Land, the Waterbury Reservoir, Blush Hill Boat Access area or Waterbury Center State Park. No environmental impact analyses of the proposed reroute have been conducted. Bulmer pfr.at 5; Frederick pfr. 5/23/05 at 4; Orr tr. 7/7/05 at 111; Moulton pfs 6/27/05 at 5-6.

58. The reroute as proposed appears to traverse the highest point of land on the reservoir, potentially impacting the 60,000 users of the Mount Mansfield State Forest, Blush Hill boat launch access area, Waterbury Reservoir, Waterbury Center State Park, trail users of the Peninsula Nature Trail and from a number of remote campsites on the south shore of the eastern arm of the Reservoir. This would result in an increased adverse aesthetic impact over the VELCO proposal in the existing GMP ROW. Bulmer pf. at 6; Frederick pf. 5/23/05 at 7-8. Boyle tr. 7/8/05 at 31-32.

59. The Gregg Hill Residents' proposed reroute would have a direct impact on the existing ecology of that portion of the state forest. The footprint of disturbed land will be greater with the proposed reroute than with the VELCO-proposed upgrade route because it will travel at least 200 feet further than the existing GMP ROW and will likely require more poles and will require an angle structure. Frederick pf. at 4-7; Raphael pfs 6/27/05 at 1; Moulton pfs 6/27/05 at 5.

60. The difficult terrain in the area of the proposed Gregg Hill Residents' reroute and the VELCO alternatives may require extensive clearing and impact from construction alone,

and the landscape, aesthetic and natural resource values would be irreparably degraded by the construction of a new corridor in this area. Raphael pf. at 2.

61. The management goal for the Blush Hill Block of the Mount Mansfield State Forest is to maintain a closed canopy forest. The 100 foot clear cut corridor required for the reroute is not consistent with the Long Range Management Plan for this section of the Forest. Frederick tr. 7/18/05. at 76-77; ANR-DF-2.

62. The Gregg Hill reroute and VELCO's alternatives will interfere with a scheduled timber harvest which is planned for this area to selectively harvest trees that will promote health and quality of the stand and result in a more productive and healthy forest resource. The proceeds of this timber sale will be deposited into the Vermont Lands and Facilities Trust Fund which is dedicated to the stewardship of state lands and facilities. Frederick tr. 7/18/05 a 73-77.

63. The Gregg Hill Residents' reroute represents a request for a new use of undeveloped state forest land which is subject to the Forests, Parks and Recreation (FPR) Policy #16, entitled "Utility Easements," and the Agency of Natural Resources (ANR) Policy: Uses of State Lands. Frederick pf. at 3; ANR-DF-3; ANR-Rebuttal-SB-1; Raphael pf 6/27/05 1-2.

64. The "ANR Policy: Uses of State Lands" was developed to avoid setting a precedent where state land would become the repository for all uses not desired on private lands especially where there is no benefit to state lands and recreational facilities and/or the public who use such facilities. Because Gregg Hill reroute would use public land for private benefit, it contravenes this policy. Frederick pf. 5/23/05 at 3; Bulmer pf.5/23/05 at

4; Frederick tr. 7/18/05 at 55-57; ANR-DF-3; ANR-Rebuttal-SB-1; Raphael pf 6/27/05 1-2;

65. The proposed Gregg Hill reroute would not be in the public interest because it benefits a limited number of private residents and yet would result in increased negative visual and environmental impacts to the state forest and Waterbury Reservoir and associated recreational resources. This is particularly true in light of the fact that there is an existing corridor that runs along an already disturbed part of the State Forest along Gregg Hill Road. Bulmer pf. 5/23/05 at 10-11, 15-16; Bulmer tr 7/8/05 at 107-107; Frederick tr. 7/18/05 57-64, 66-69; Raphael pf. 6/27/05 at 1-2.

Discussion

The Gregg Hill Residents' proposed reroute and the VELCO's alternatives do not meet the historical test of what is in the public good nor does it comply with the current policies and plans implemented by the Agency. This reroute would use state forest land to benefit residents on Gregg Hill Road, while potentially impacting the 60,000 users of the reservoir. It would also contravene the prescribed forestry practices provided for in the Long Range Management Plan for the Mount Mansfield State Forest. Adverse impacts associated with the reroute include: the increased visual presence of the line (as it compares to the current line or the proposed upgrade); it introduces a fragmenting feature where none now exists; it potentially impacts important wildlife habitat; it runs counter to the established management plan for this area; and it clouds a timber sale the proceeds of which benefit all those who utilize the state's forest and parks.

Respectfully submitted this 10th day of August, 2005 at Waterbury, Vermont.

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